

REMARKS/ARGUMENTS

STATUS OF THE APPLICATION

Claims 1-19 and 21-27 are pending. Claims 1 and 15 have been amended. Support for the amended claims can be found in the specification. No new matter has been added.

Claims 1-4, 6-7, 10-13, 15, 19, 21, 23-25 and 27 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication 2002/0117659 to Lieber et al. ("Lieber").

Claims 5, 8, 9, 14, 16-18, 22, and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lieber.

THE CLAIMS

Reconsideration and allowance of the claims is respectfully requested in light of the amendments to the claims and following remarks.

Applicants respectfully submit that Lieber does not teach or suggest each and every feature of the present invention as claimed. For example, claim 19 recites, in part, "illuminating energy onto the surface area of the nanowire structure to change the nanowire structure having the first chemical species from the first electrical state to a second electrical state whereupon the second electrical state allows a conduction characteristic of the nanowire to change from the first electrical state to the second electrical state." Nowhere does Lieber teach or suggest illumination of an opto-electronic device to induce a surface interaction resulting in a change in a conduction characteristic in the manner claimed. Examiner relies on paragraph 136 of Lieber as allegedly showing this element. (Office Action: p. 3). Paragraph 136 of Lieber merely discusses properties associated with the nanowire that can be used by possible detectors (such as voltage, current, conductivity, resistance, impedance, inductance, and charge) and examples of stimuli (including electromagnetic radiation such as light). However, the paragraph cited by Examiner does not teach or suggest that illumination of a nanowire by electromagnetic radiation will in any way affect the conductivity of the nanowire.

Furthermore, assuming in arguendo that Lieber does teach or suggest electromagnetic radiation illumination will result in a change in conduction characteristic (even though there is no reason to believe so), Lieber must provide an enabling disclosure to serve as a prior art reference under 35 U.S.C. § 102. MPEP § 2121. Lieber does not teach one of ordinary skill how to practice the present invention as claimed. No composition is suggested by Lieber to affect a change in a conduction characteristic of a nanowire depending on illumination. For example, Lieber never discusses the use of O₂, NO₂, H₂O, NO, or SO₂ to make the conductivity of a nanowire vary with illumination in the manner claimed.

Accordingly, claim 19 should be allowed for at least these reasons.

Claim 1 recites, in part, "an active surface structure ... , whereupon the nanowire structure has a first conductivity value as measured between the first terminal and the second terminal while the active surface is subjected to a first intensity of electro-magnetic radiation illumination, the nanowire structure having a second conductivity value as measured between the first terminal and the second terminal while the active surface is subjected to a second intensity of electro-magnetic radiation illumination," Lieber fails to teach or suggest these features. Therefore, claim 1 is allowable for at least this reason.

Claim 27 recites, in part, "an active surface structure ... , whereupon the nanowire structure has a first resistance value as measured between the first terminal and the second terminal while the active surface is subjected to a first level of electro-magnetic radiation, the nanowire structure having a second resistance value as measured between the first terminal and the second terminal while the active surface is subjected to a second level of electro-magnetic radiation, wherein the release of a portion of the first chemical species from the active surface structure varies with the intensity of electro-magnetic radiation from the first level of electro-magnetic radiation and the second level of electro-magnetic radiation." Lieber fails to teach or suggest these features. Therefore, claim 27 is allowable for at least this reason.

Claims 2-18 and 21-26, which depend from claims 1 and 19, should be allowed for a similar rationale as discussed above for claims 1 and 19, as well as the additional limitations they recite.

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PATENT

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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